

CLAIMS

1. Thermoplastic composition comprising at least an hypophosphorous acid metal salts as halogen-free flame retardant agent and at least an aromatic polycarbonate resin.
- 5 2. Thermoplastic composition according to claim 1, characterised in that said aromatic polycarbonate resin is blended with a graft copolymer styrenic resin and that the polycarbonate resin/graf copolymer styrenic resin ratio ranges from 60/40 to 90/10.
- 10 3. Thermoplastic composition according to claim 2, characterised in that said polycarbonate resin is obtained by reaction of bis(hydroxyphenyl) alkanes, 2,2bis(4-hydroxyphenyl)propane (bisphenolA), bis(4-hydroxyphenyl) methane, 1,1- bis(4-hydrophenyl) ethane, hydroquinone, resorcinol, catecol.
- 15 4. Thermoplastic composition according to claim 1, characterised in that said polycarbonate resin is a recycled polycarbonate materials (also named scrap PC, such as post industrial products, post consumer recycled materials) as such (as pellets or as regrind) or in mixture with virgin polycarbonate polymer or also blended with an impact modifier resin.
- 20 5. Thermoplastic composition according to claim 1, characterised in that said polycarbonate resin has an average Molecular Weight from 10000 to 50000.
6. Thermoplastic composition according to claim 2, characterised in that said graft copolymer styrenic resin are selected among: impact resistant polystyrene (HIPS), ABS resins, MBS resins
- 25 7. Thermoplastic composition according to claim 2, characterised in that said styrenic resin amount ranges from 10% to 40% by weight based on the weight of total resins.
8. Thermoplastic composition according to claim 1, characterised in that said metal is an alkaline metal belonging to the first, second and third main group or second, seventh, eighth subgroup of the periodic table of the elements.
9. Thermoplastic composition according to claim 8, characterised in that said metal is selected among: Ca, Ba, Mg, Al, Zn, Fe, B.
- 30 10. Thermoplastic composition according to claim 9, characterised in that said

hypophosphorous acid metal salt is Calcium hypophosphate and/or Aluminium hypophosphate.

11. Thermoplastic composition according to claim 1, characterised in that said hypophosphorous acid metal salt is present in an amount ranges from 1% to

5 30% by weight on the weight of the composition.

12. Thermoplastic composition according to claim 1, characterised in that said hypophosphorous acid metal salt is present in combination with halogen-free organic phosphoric esters.

13. Thermoplastic composition according to claim 12, characterised in that
10 said halogen-free organic phosphoric esters are selected among:
triphenylphosphate, (TPP), tricresyl phosphate, trixylilenphosphate,
resorcinoldiphosphate, resorcinolbis diphenylphosphate, bisphenol A bis
diphosphate, trimethylphosphate, tributylphosphate, trioctylphosphate

14.. Thermoplastic composition according to claim 1, characterised in that
15 said hypophosphorous acid metal salt has an average particle size of the
powder (d50%) lower than 40 μm and an highest particle size below 100 μm .

15., Thermoplastic composition according to claim 14, characterised in that
said hypophosphorous acid metal salt has a d50% value below 20 μm and an
highest particle size below 50 μm .

20 16. Thermoplastic composition according to claim 1, characterised in that it
comprises additives and/or fillers, said additives being present in an amount
ranging from 0.5 to 5 % by weight on the weight of the composition, said
fillers being present in an amount up to 50 % by weight on the weight of the
composition.

25 17. Thermoplastic composition according to claim 16, characterised in that
said additives are selected from: processing aids, heat and process
stabilisers, UV stabilisers, antidripping agents, pigments, lubricants, mould
releasing agents, colorants, plasticizers.

18. Thermoplastic composition according to claim 1, characterised in that it
30 comprises fluorine -containing ethylene polymers in an amount of up to 2%,
preferably up to 1%, based on the weight of thermoplastic composition.

19. Thermoplastic composition according to claim 18, characterised in that said fluorine-containing ethylene are selected among: polytetrafluoroethylene (PTFE) or tetrafluoroethylene-hexafluoropropylene copolymers (Algoflon TM).
- 5 20. Thermoplastic composition according to claim 18, characterised in that said fluorine-containing ethylene are characterized by a particle size from 0,1µm to 10µm.
21. Thermoplastic composition according to claim 16, characterised in that said fillers are selected among: carbon fibers, glass fibres, glass beads,
- 10 22. Process for the preparation of a thermoplastic composition according to claim 1, characterised in that the starting components and the additional components are mixed and kneaded in predetermined ratios, extruded and pelletized.
- 15 23. Process according to claim 22, characterized in that the kneaded temperature is comprised between 240 and 290 °C.
24. Thermoplastic articles obtained using a halogen-free flame retardant composition according to claim 1.